AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (previously presented): An image processing method for smoothing digital data for an input image and for removing noise included in the digital data, the method comprising:

extracting an edge of the image from the digital data,

calculating edge information comprising a grade and a direction of a slope of the extracted edge;

selecting preset filter information based on the calculated edge information; and

smoothing all of the digital data based on the selected filter information.

2. (previously presented): The image processing method according to claim 1, wherein:

the filter information comprises first filter information with a smoothing range described by a circle shape and second filter information with a smoothing range described by an elliptical shape;

when the grade of the slope is smaller than a threshold, the first filter information is selected; and

when the grade of the slope is larger than the threshold, the second filter information is selected .

3. (previously presented): The image processing method according to claim 1, wherein, the filter information is selected for which the direction of the slope corresponds to an inclination of a smoothing range.

4. (previously presented): The image processing method according to claim 1 further comprising:

calculating luminance using the digital data;

calculating a smoothing strength using the luminance; and

selecting the filter information corresponding to the calculated edge information and the calculated smoothing strength.

5. (previously presented): An image processing method, for smoothing digital data for an input image and removing noise included in the digital data, the method comprising:

extracting an edge of the image from the digital data;

calculating edge information comprising a grade and a direction of a slope of the edge;

generating filter information based on the calculated edge information; and

smoothing all of the digital data of the input image based on the generated filter information.

6. (previously presented): A computer readable medium storing a computer program intended for use with an image processing apparatus which includes an input unit for entering

image data, a processor for processing digital data output by the input unit, and a recording unit for recording filter information used to process the digital data, to smooth digital data for an input image and to remove noise included in the digital data, the computer program defining operations, comprising:

an edge information calculation step of extracting an edge of the image from the digital data received from the input unit, and calculating edge information comprising a grade and a direction of a slope of the edge;

a filter information reading step of selecting specific filter information stored in the recording unit based on the edge information obtained at the edge information calculation step; and

a processing step of smoothing all of the digital data received from the input unit based on the filter information selected at the filter information reading step.

7. (previously presented): The computer readable medium according to claim 6, wherein the filter information selected at the filter information reading step is so set that when the grade of the slope is small, a smoothing range describes a circular shape, and when the grade of the slope is large, the smoothing range describes an elliptical shape.

8. (previously presented): The computer readable medium according to claim 6, wherein the filter information selected at the filter information reading step is so set that an inclination of a smoothing range corresponds to the direction of the slope.

9. (previously presented): The computer readable medium according to claim 6, wherein the operations further comprise:

a smoothing strength calculation step of calculating luminance using the digital data, and of calculating a smoothing strength using the luminance,

wherein, at the filter information reading step, specific filter information is selected from the recording unit based on the edge information obtained at the edge information calculation step and the smoothing strength obtained at the smoothing strength calculation step.

10. (previously presented): A computer readable medium storing a computer program intended for use with an image processing apparatus which includes an input unit for entering image data and a processor for processing digital data output by the input unit, to smooth digital data for an input image and to remove noise included in the digital data, the computer program defining operations, comprising:

an edge information calculation step of extracting an edge of the image from the digital data, and calculating edge information that comprises a grade and a direction of a slope of the edge;

a filter information generation step of generating filter information based on the edge information obtained at the edge information calculation step; and

a processing step of smoothing all of the digital data received from the input unit based on the filter information generated at the filter information generation step.

11. (previously presented): An image processing apparatus comprising:

an image input unit for receiving image data and outputting the image data as digital data;

an edge calculation unit for extracting an edge of an image from the digital data output by the image input unit, and for calculating edge information that comprises a grade and a direction of a slope of the edge;

a recording unit for storing filter information that is set in correlation with the edge information;

a filter information selection unit for, based on the edge information calculated by the edge information calculation unit, selecting filter information stored in the recording unit; and

a smoothing unit for smoothing all of the digital data output by the image input unit based on the filter information selected by the filter information selection unit.

12. (previously presented): An image processing apparatus according to claim 11, further comprising:

a smoothing strength calculation unit for calculating luminance using the digital data, and calculating a smoothing strength using the luminance,

wherein, on the recording unit, the filter information is stored that is set in correlation with the edge information obtained by the edge information calculation unit and the smoothing strength obtained by the smoothing strength calculation unit.

13. (previously presented): An image processing apparatus comprising:

an image input unit receiving image data and outputting the image data as digital data;

an edge calculation unit extracting an edge of an image from the digital data output by the image input unit, and calculating edge information comprising a grade and a direction of a slope of the edge;

a filter information generation unit generating filter information stored in the recording unit based on the edge information calculated by the edge information calculation unit;

a smoothing unit smoothing all of the digital data output by the image input unit based on the filter information generated by the filter information generation unit; and

a recording unit for storing the smoothed digital data.

14. (previously presented): The image processing method according to claim 1, further comprising inputting image data and converting image data into the digital data.

15. (previously presented): The image processing method according to claim 1, wherein a shape of a smoothing range depends on the grade of the slope.

16. (previously presented): The image processing method according to claim 1, wherein the preset filter comprises a smoothing range for said smoothing of all of the digital data and wherein a shape of the smoothing range depends on the grade of the slope.

17. (new): The image processing method according to claim 1, wherein

the filter information is selected from plural sets of filter information, whose elliptical

shapes of a smoothing elliptical ranges are different in shape and inclination from each other,

based on the grade and the direction of the slope.

18. (new): The image processing method according to claim 5, wherein the filter

information defines a smoothing elliptical range, and

at the filter information selection step, an elliptical shape of the smoothing elliptical range

and inclination of the elliptical shape are determined based on the grade and the direction of the

slope.